

I N D I N E W S

Newsletter on Science & Technology & Innovation Indicators

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'...how about mapping?' During the past two years, many people have been involved in DG-Research as well as the Member States representatives in the HLG in the exercise of 'mapping excellence'.

In this issue some results from the mapping of excellence in Economics in Europe are given.

'...and how about the 3%?' Equally here, there are updated data available that are presented. The data are rather alarming and will feed into the 3% discussion.

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Mapping of excellence in Economics

'The mapping of excellence in Europe' was set as one of the main attempts by the Lisbon Council in 2000. Together with the 'Benchmarking of national research policies' and the 'Opening up of national research schemes', the Commission services and the HLG have dealt with this mission now for almost two and a half years and the pilot phase recently came to an end.

Mapping of economics has taken into account a number of indicators, thus the most broadly used ones are bibliometric indicators. The following tables provide an overview of economics publications by the Member States as well as some detailed results on the sub-field level. As several studies on ranking of economic departments in several Member States exist, the decision was made to focus on a number of sub-fields instead. The following four economic sub-fields were chosen for detailed analysis:

- *Mathematical and quantitative methods*
- *Industrial organisation*
- *Labour and demographic economics*
- *Economic development, technological change & growth*

The analyses are based on the databases EconLit and the Social Science Citation Index (SSCI). Only articles published between 1990-1999 with at least one European address among its authors were included. More details on methodology are included in the report, which will be made available soon.

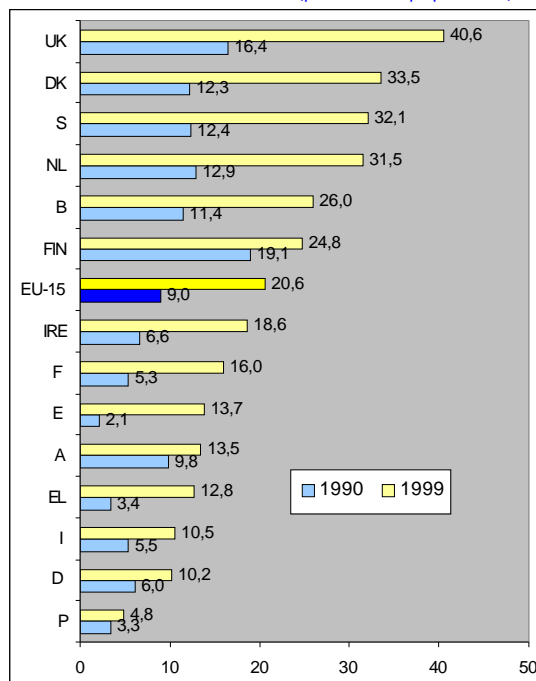
Economics in the EU-15

What is the situation in terms of publications of economics papers in the different Member States? With one third of the European economics literature production, the UK clearly dominates – its average share was 37% during the 1990s. France and Germany are relatively large producers, however, in terms of publications per population only the UK maintains and even increases its lead (see Figure 1). The Scandinavian countries, together with Belgium and the Netherlands are above the European average of 21 publications per million population. Germany's increase between 1990 to 1999 is hidden behind its significant population increase.

Does this show the productivity of the countries in economics research? Certainly not: it shows however the countries' performance in terms of international, peer-reviewed articles. The low ratio for Germany for example is a hint that a lot of economic research is published in German, in German journals etc. but there are only a handful German journals covered in the SSCI and only a few more in EconLit. The same is true for France, Italy, and most non-English speaking countries that are underrepresented in the databases. However, as English is the lingua franca in economics, economists coming from a smaller language community such as Swedish, Danish or Dutch, have a higher propensity and incentive to publish in English – as their 'local market' for their research outcome is rather limited.

In case of the German speaking countries, the pressure to publish in English is less high, as the German-speaking 'market' is relatively large. An exception seems to be Portugal, showing only a poor performance in terms of shares as well as growth rates. This might partly be explained with a relatively low propensity to co-publish with other than Spanish or UK scientists.

Figure 1: Number of economics publications by EU-MS, 1990, 1999, EconLit, (per million population)



Source: DG-Research

Note: EU-15 average calculated without L

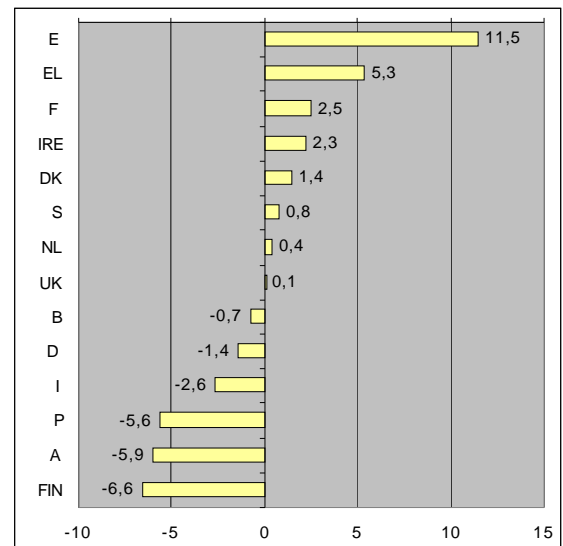
Despite their overall growth rates, some countries have declining shares in the economics literature production such as Belgium or Italy, others show remarkable growth rates e.g. Spain and Greece.

From this overall picture of the relative contributions to economics publications by Member State, one could try to explain the differences in numbers per population by either the number of institutions publishing, or the publishing propensity of scientists.

This simple equation leaves out one important variable: attractiveness. Economists, especially the young ones are quite mobile and look for employment to do research period often only in one European country: the UK. Of course, the number of universities having economics departments in absolute terms is highest in the UK. Thus, the absorptive capacity of qualified scientists from within- and outside the country is high. Furthermore, with English as the lingua franca in economics, the UK benefits even more.

In terms of success, the UK is the most successful and a strong 'Mathew Effect' exists.

Figure 2: Publication growth rate by EU-MS, 1990-1999, EconLit, in %



Source: DG-Research

In terms of top performers at the sub-field level, the largest numbers come not surprisingly from the UK, followed by the Netherlands, Belgium and Sweden.

In spite of what is seen at the overall performance, some surprising results have been found on the sub-field level. For example in the field of *Economic development, technological change and growth*, the Spanish University Pompeu Fabra was identified as excellent in terms of citations and citation impact – despite the fact of a relative small number of publications (Table 1).

Table 1: Top performers in "Economic development, technological change & growth" SSCI 1990-1999

	Publications	Citations	Impact
1	Univ. Oxford	Pompeu Fabra	Pompeu Fabra
2	Univ. Sussex	Univ. Oxford	LSE
3	LSE	Univ. Sussex	UCL London
4	Univ. Cambridge	LSE	Univ. York
5	Univ. Nottingham	UCL London	School of Oriental & African Studies, Univ. London
6	Univ. Manchester	Univ. Cambridge	Univ. Sussex
7	UCL London	Univ. Manchester	Univ. E Anglia
8	Free Univ. Amsterdam	Univ. Nottingham	Univ. Reading
9	Pompeu Fabra	Univ. Wales Cardiff	Univ. Oxford
10	Univ. Tilburg	Univ. Maastricht	Univ. Wales Cardiff
10	Univ. Warwick		
10	Univ. Groningen		

Source: DG-Research

These sort of surprises are apparent in all the sub-fields chosen. In this respect, it makes sense to analyse especially wide ranging disciplines such as economics by breaking out various sub-fields in order to identify the hidden talent.-----VP

3% target:

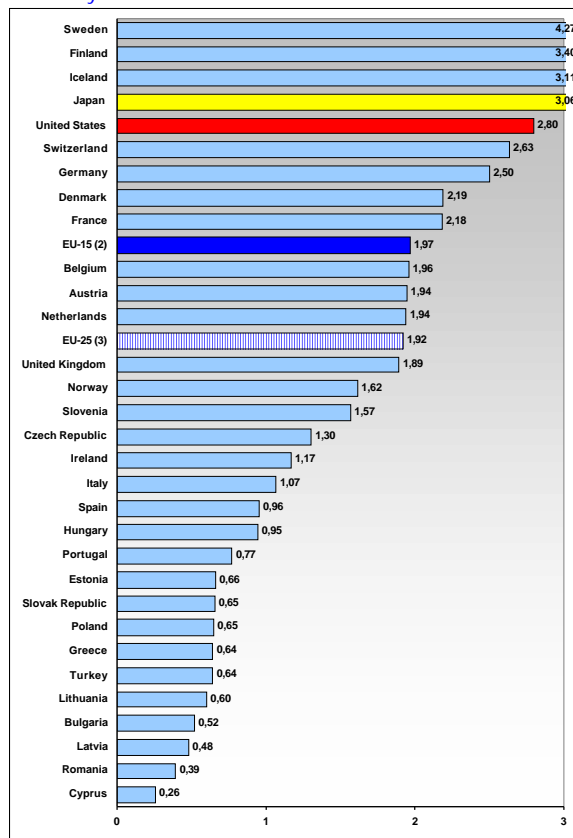
Is Europe on the right track?

At the European Council of Barcelona (March 2002), the Heads of State and of Governments committed themselves to increase the overall level of resources allocated to R&D to reach 3% of GDP by 2010. New data on R&D investment for 2001 show to what extent European countries are on track towards this goal.

DG RTD's unit K3 has analysed the latest figures on R&D Investment in Europe, the US and Japan for 2001. The new data indicate both positive and negative trends.

Europe's R&D intensity has reached its highest level ever. The EU-15 allocated in 2001 1.97% of its GDP to Research and Development (see Figure 3). This is the highest R&D-intensity in more than ten years: between 1990 and 2000, it remained between 1.87% and 1.94%.

Figure 3: R&D Intensity (GERD as % of GDP), 2001 or latest year available

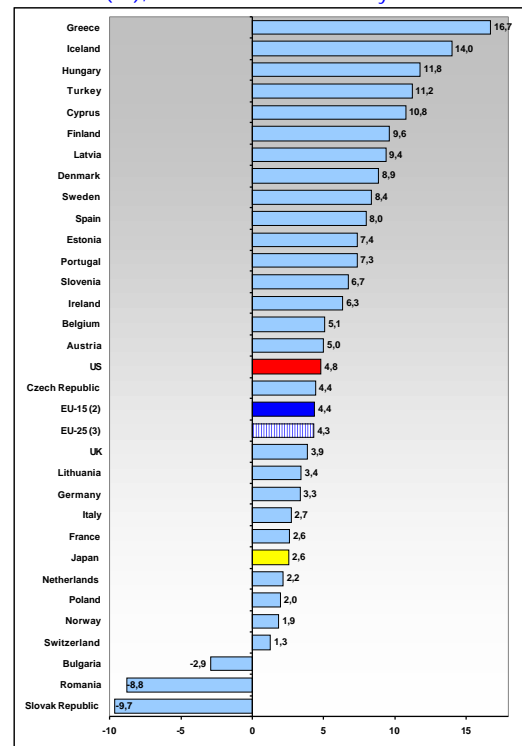


Source: DG-Research

Moreover, some countries are already clearly above the 3% target, like Sweden (4.27%) or Finland (3.40%). Japan invested in 2001 for the first time in its history more than 3% of its GDP in research. The average R&D intensity of the EU-25, finally has been estimated for 2001 at 1.92%, thanks to the efforts of some Accession countries like Slovenia or the Czech Republic.

However, the annual rate of growth of the R&D-intensity - on average about 1.3% a year since 1997 - is still not sufficient to reach the objective put by the Barcelona European Council. If the current trend continues, the best Europe can hope for is to achieve a level of around 2.3% by 2010. It remains clear, then, that if the EU is to approach the Barcelona target by 2010, substantial efforts will be required to create the conditions through which it might be achieved.

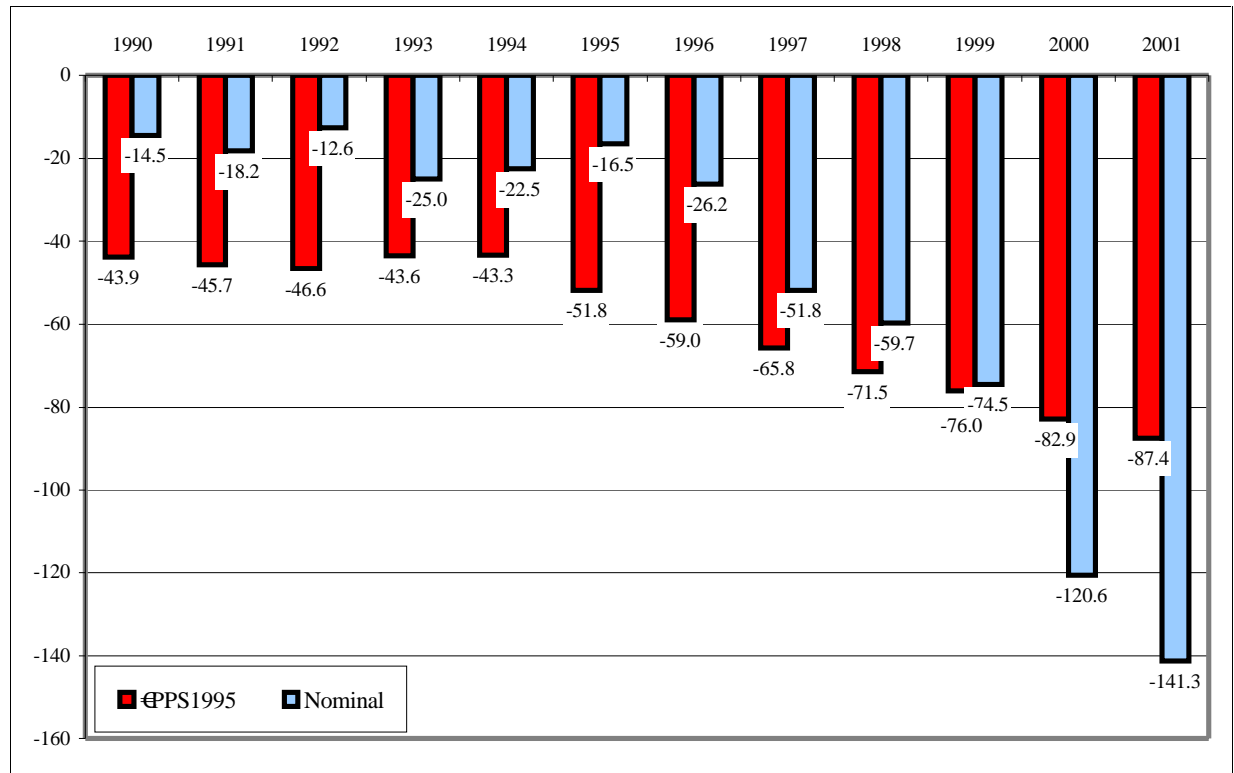
Figure 4: R&D Investment – average annual real growth (%), 1997 to latest available year



Source: DG-Research

Moreover, the rate of growth of the total R&D investment in Europe (in the EU-15 and EU-25 as well) is still lower than in the US (see Figure 4). R&D investment grew between 1997 and 2001 in the EU-15 by 4.4% a year (4.3% in the EU-25), whereas it increased by nearly 5% in the US. As a consequence, the gap between the EU-15 and the US has been widening again in 2001. The US invested in 2001 141 billions Euro more in R&D than the EU-15 (87 billions Euro in purchasing power standards).-----VD

Figure 5: Investment gap between the US and the EU-15, 1990-2001 (billions €, nominal and PPS1995)



Source: DG-Research

Miscellaneous

Conferences:

Risk Capital and the Financing of European Innovative Firms – the research network RICAFE will hold its first conference in London, October 24-25, see: www.lse.ac.uk/ricafe

SIFR Conference on *Venture Capital and Entrepreneurial Finance* takes place in Stockholm, August 29-30, see: www.sifr.org

EUNIP; the *European Network on Industrial Policy* holds its 7th annual conference in Porto, September 18-20, see: www.fep.up.pt/conferences/eunip2003/

A conference in honour of Keith Pavitt on *'What Do We Know About Innovation?'* is organised by SPRU and takes place in Brighton, November 13-15. See also: www.sussex.ac.uk/spru/events/KP_Conf_03/index.html

'Science based regional development' will be the topic of a conference in Delft, September 18-19, see: www.science-alliance.nl

New Publications:

Some final reports from the CBSTII programme are now available online, such as *"Patents in the Service Industries"*, led by Fraunhofer-ISI

"Comparative Analysis of Public, Semi public and Recently Privatised Research Centres", a four volumes report compiled by PREST *et al.*

The reports are available @ www.cordis.lu/indicators/publications.htm

Other information:

- RTD/K3's website: new simpler address: under www.cordis.lu/indicators
- RTD/K3 published a call for tenders and a call for expression of interest covering the following fields of research:
 - regular collection of bibliometric indicators;
 - database of S&T data on Europe's leading research universities;
 - analysis of university and public research institutions' patenting activity

Further information is available on our website.